

Difference of Squares

Remember factoring a trinomial??

$$x^2 - 6x + 9$$

$$M: +9 \quad N: -3, -3$$

$$A: -6$$

$$(x-3)(x-3) = (x-3)^2$$

What if the middle number is zero??

$$x^2 - 0x - 9$$

what multiplies to -9 and adds to 0?

$$M: -9 \quad N: -3, +3$$

$$A: 0$$

$$(x-3)(x+3)$$

we wouldn't write the 0

$$\therefore x^2 - 9$$

What about  $x^2 + 0x + 9$ ?

unfactorable!

hmmmm... is there a pattern here???

it has to be a MINUS!!

This is called: **DIFFERENCE OF SQUARES!!**

$$x^2 - y^2 = (x+y)(x-y)$$

Let's try some....

$$x^2 - 16$$

$$x^2 - 25$$

$$r^2 - 36$$

$$h^2 - 100$$

$$x^2 - 16 = (x+4)(x-4)$$

$$x^2 - 25$$

$$x^2 - 5^2$$

$$(x-5)(x+5)$$

$$r^2 - 36$$

$$(r+6)(r-6)$$

$$h^2 - 100$$

$$(h-10)(h+10)$$

Harder ones:

$$4x^2 - 16$$

$$9x^2 - 25$$

$$(2x-4)(2x+4)$$

$$4(x-2)(x+2) \checkmark$$

$$4(x^2 - 4)$$

$$4(x+2)(x-2) \checkmark \checkmark$$

$$9x^2 - 25$$

$$(3x-5)(3x+5)$$

Try:

$$1) 36x^2 - 49$$

$$2) x^2 - 81$$

$$3) x^2 - 10000$$

$$4) 49x^2 - 1$$